



Brightwater

T R E A T M E N T S Y S T E M

Technical seminar series wraps up

After the November 2002 release of the draft environmental impact statement, or Draft EIS, Brightwater engineers and staff continued to expand and refine the scientific analyses and studies for the three Brightwater alternatives. These new findings were shared at three technical seminars in June, July and August 2003.


The technical seminars presented updated information on the Brightwater project, and they allowed people to talk directly with technical experts to get answers to their project-related questions. The seminars were open to the public and provided detailed, in-depth technical information.

With each of the summer seminars, technical memorandums were released, and people were invited to comment on the information. Comments that were received

within each seminar's 30-day comment period will be considered before release of the Final EIS in November 2003.

The Brightwater team first hosted a technology seminar in October 2002 in response to suggestions from the Route 9 Task Force. Because the event was so successful, King County planned the most recent series using a similar format.

Many updates were made in response to public comments on the Draft EIS about community and environmental concerns such as odor control, groundwater, water quality, traffic, and construction impacts.

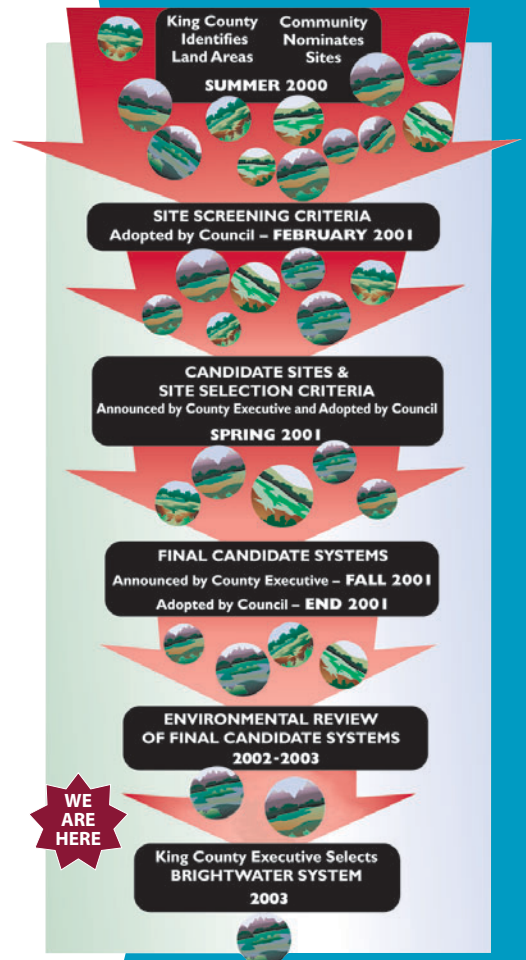
For an overview of some of the new mitigation features for the project, please see the summary chart on Page 2. 

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Technical Seminar Video Tape!

The July 19 seminar, Treatment Plant and Conveyance Update, was taped for broadcast on King County Civic Television - CTV. For air dates, or for a free video copy, please contact the Brightwater project team (see Page 4)

Project Web Site

Learn more about the project and important decision-making milestones by visiting us at
<http://dnr.metrokc.gov/wtd/brightwater/>



King County

Department of
Natural Resources and Parks
**Wastewater Treatment
Division**

SYSTEM SUMMARY - Updates since the Draft EIS*

PROJECT ELEMENT	DRAFT EIS PROPOSAL	MITIGATED PROPOSAL	EXPLANATION
Size of Route 9 Site	106 acres	114 acres	Assumes addition of Stockpot Soup property
Size of Unocal Site	53 acres	53 acres	No change
Treatment Technology (Both sites)	Conventional Activated Sludge (CAS)	Membrane Bioreactor (MBR) Treatment	MBR creates cleaner effluent and uses less space. Space is reserved on both sites for CAS, if future need arises
Disinfection Technology	Route 9: Sodium hypochlorite (Strong household bleach) Unocal: Ultraviolet (UV) disinfection	Route 9: Sodium hypochlorite (Strong household bleach) Unocal: Ultraviolet (UV) disinfection plus sodium hypochlorite on some flows.	Though costly, UV uses less space, making it a more suitable option at Unocal where space is limited. Sodium hypochlorite is necessary to disinfect some flows, and to disinfect reclaimed water
Odor System Improvements	Route 9: Centralized three-stage chemical scrubbers followed by biofilters for polishing Unocal: Decentralized three-stage chemical scrubbers, followed by carbon filter	Route 9 and Unocal: Decentralized three-stage chemical scrubbers, followed by carbon filter. All plant processes will be covered	Carbon filtration was found to be more effective for odor removal than biofilters, and also uses less space
Conveyance Route Alignment	Direct routes under private property proposed (all alternatives)	Routes adjusted to follow public rights-of-way wherever possible. Check Web site for maps (See Page 4)	Citizen concerns about tunneling under private property
Tunnel Length	Route 9 - 195th: 20.3 miles Route 9 - 228th: 20.7 miles Unocal: 11.6 miles	Route 9 - 195th: 15.9 miles Route 9 - 228th: 20.3 miles Unocal: 11.6 miles	The Route 9 - 195th tunnel length was substantially shortened by combining a length of influent and effluent pipelines in one tunnel that follows public rights-of-way
Primary/Secondary Portals	Route 9 - 195th: 11 portals Route 9 - 228th: 12 portals Unocal: 8 portals	Route 9 - 195th: 5 primary, 4 secondary Route 9 - 228th: 7 primary, 4 secondary Unocal: 4 primary, 4 secondary	Eliminated tunnel from Lake Forest Park to Kenmore and reduced the overall number of portals on each alternative. Primary portals are necessary, but secondary portals are unlikely to be built — this will be determined in final design
Pipeline Diameter	14-foot maximum diameter	12- to 24-foot maximum diameter	Two pipes (influent and effluent) can run in the same larger-diameter tunnel between Portal 44 and the Route 9 site on the mitigated preferred alternative

*Additional project updates can be found online in our technical reports. Visit the Web site for the most current project description of the treatment plant site: <http://dnr.metrokc.gov/WTB/brightwater/seminars/tecmemos/tm-b-033.pdf>

Or for an updated conveyance project description:

<http://dnr.metrokc.gov/WTB/brightwater/seminars/tecmemos/tm-b-072.pdf>

For more information, or to get copies of technical reports, please contact the Brightwater project team (see Page 4)

New treatment technology at Brightwater will mean cleaner water in less space

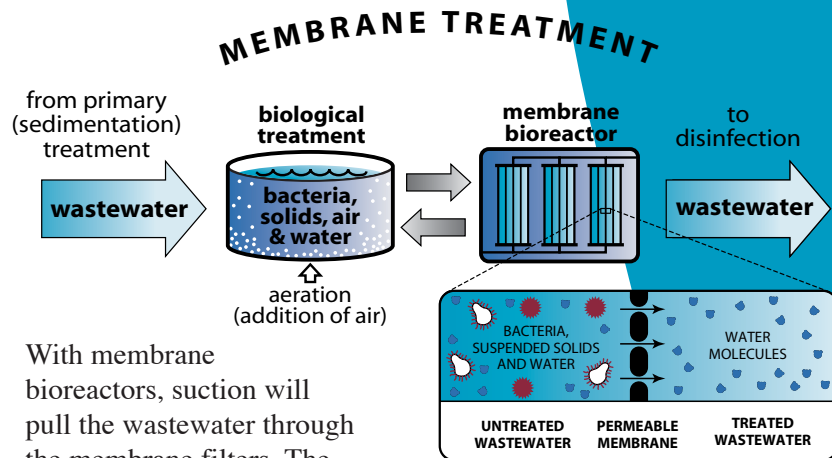
Brightwater engineers plan to include an innovative new technology that can get wastewater seven to 10 times cleaner than traditional systems while using less space on the plant site. After evaluating a range of technologies, King County selected a membrane bioreactor system, which uses membrane filtration and standard biological wastewater treatment.

Membrane technology was originally used for drinking water filtration. Though the wastewater treatment industry considers the systems emerging technology, the research into membrane bioreactors to treat wastewater began more than 30 years ago.

Membrane bioreactor systems have been thoroughly studied and tested for several decades and have been used successfully in commercial and industrial wastewater treatment for about 10 years. Today, there are about 150 membrane bioreactors operating in wastewater treatment plants in North America and hundreds more worldwide. Membrane technology was recently selected as the system of choice for a wastewater plant near the sensitive ecosystem of Australia's Great Barrier Reef.

Wastewater is treated in two stages to achieve secondary treatment. The primary treatment stage removes about 60 percent of solids by skimming and settling the water. Secondary treatment removes most remaining solids using a biological process. Living organisms (bacteria) eat the dissolved organic material and are then removed. In conventional treatment, the bacteria and solids settle out in large tanks called secondary clarifiers.

At Brightwater, membrane cartridges or plates replace those tanks, using less space on the site. The smaller footprint also benefits odor control because processes can be more easily covered, with air being sent to an odor control facility.



With membrane bioreactors, suction will pull the wastewater through the membrane filters. The filters have pores large enough to allow passage of the water molecules but small enough to screen out unwanted particulate matter, including bacteria.

The result is superior filtering – and cleaner effluent. The membrane process removes more particulate matter than traditional wastewater treatment. However, effluent will still need disinfection with either ultraviolet light or sodium hypochlorite, which is a strong form of household bleach. Following disinfection, effluent will be released into Puget Sound, though about 5 million gallons per day will be reserved for reuse.

In conventional treatment, a third stage is needed to create reclaimed water. Because the membrane bioreactors can filter out tiny particles and organisms, the filters can eliminate the need for separate secondary and advanced treatment processes.

King County gained confidence in membrane systems by conducting pilot studies on the technology at the West Point Treatment Plant in Seattle. Many vendors make membrane technology, so King County will have a range of choices in selecting and customizing a system that best suits Brightwater.

Reclaimed water can be used for:

- ♦ Irrigation
- ♦ Industrial processes
- ♦ Heating and cooling
- ♦ Other uses that don't require drinking-quality water

Brightwater will produce 5 million gallons of reclaimed water per day. Up to 3 million gallons will be used on-site for irrigation, tank wash-down, and other process and maintenance purposes. As demand increases, more reclaimed water will be produced for off-site customers.

Get involved in Brightwater

Community involvement continues to be an important part of the Brightwater project. We have an active speaker's bureau and welcome the opportunity to meet with your neighborhood association or community group to discuss the Brightwater project or other water quality issues. If you are interested in arranging a speaker for your next group meeting, please contact us.

We also welcome your comments, concerns, or ideas

E-mail

brightwater@metrokc.gov

Phone

The Brightwater project team at 206-684-6799, toll free at 1-888-707-8571 or 711 TTY

Web site

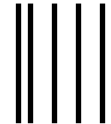
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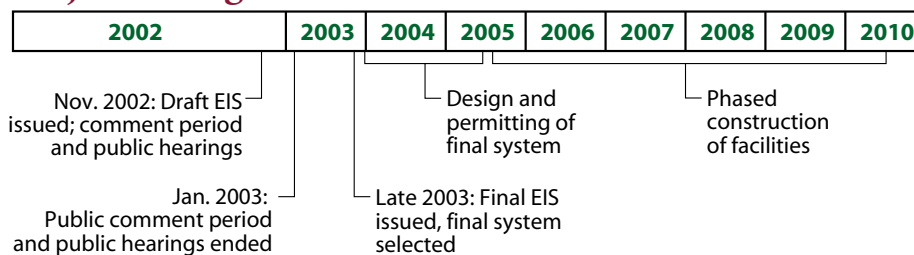
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The Brightwater team values your opinions, suggestions and ideas on many aspects of the Brightwater project. Do you have ideas for workshops or seminars? Is there a topic you'd like us to cover in the newsletter? Please let us know.

Projected Brightwater Timeline



Officials get hole story on portal tour


Elected officials in the Brightwater siting area got a glimpse of a wastewater tunneling project during a construction site tour June 25 hosted by King County Executive Ron Sims. The 14-foot-wide tunnel and deep shafts under construction at the Henderson/ML King Combined Sewer Overflow Project in Seattle's Rainier Valley are similar to the types of portals and tunnels needed to build Brightwater's pipelines.

As part of the tour, Brightwater engineers gave presentations on tunneling technology and construction methods. A scale model of a tunnel boring machine showed tunneling technology that can keep most construction-related impacts confined to portal areas, where workers and equipment access

the tunnels. Engineers now estimate as few as four portals could be needed for Brightwater.

Following the presentations, officials went to the active construction site to learn how conveyance construction might affect their communities and how King County manages day-to-day issues such as safety, traffic, and noise. Residents near the portal site were invited to the tour to meet officials. They shared their experiences living near the site and interacting with project staff to address their concerns.

To inquire about touring a treatment plant or pipeline project, please contact the Brightwater project team. (See Page 4)

A similar tour for jurisdictional staff was held June 24. 



Tunneling contractor Dennis Molvik, left, and County Executive Ron Sims talk with Kenmore Mayor Deborah Chase and Kenmore Councilmember Marcia Schwendiman during the tour.



King County Executive Ron Sims, center, meets with four neighbors of the Henderson/M.L. King CSO Project construction site in the Rainier Beach area of Seattle during a site tour: Jan and Hal Barker and Lucille and Ed Wypych. King County works closely with residents to reduce the impact of construction projects that protect public health and water quality.



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alternative formats for individuals
with disabilities on request by
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